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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,578

05/05/2006

Andre Sloth Eriksen

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EXAMINER

DUONG, THO V

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

11/24/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,578	<b>Applicant(s)</b> ERIKSEN, ANDRE SLOTH	
	<b>Examiner</b> Tho v. Duong	<b>Art Unit</b> 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 70,72-74,77-82,85,88 and 103-117 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 70,72-74,77-82,85,88 and 103-117 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/13/10 has been entered.

### ***Response to Arguments***

Applicant's arguments with respect to claims 70,72-74,77-82,85,88 and 103-117 have been considered but are moot in view of the new ground(s) of rejection.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation of upper channel and lower channel, the stator being positioned in the upper channel, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

Art Unit: 3744

be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the subject matter of upper and lower chamber is not described in the specification.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 74, 88 and 113-117 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed subject matter of "the reservoir comprises an aperture exposing

Art Unit: 3744

the cooling liquid, and wherein the heat exchange interface comprises a surface of the processing unit adapted to fit into the aperture" and "the pump is disposed at least partially outside the reservoir" in combination with the limitations that lower chamber having a recessed cavity and the impeller is located in the recess, cited in claim 70 is not supported by the original disclosure. Regarding claims 113-117, the claimed subject matters are not disclosed in the original disclosure.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 103, 106, and 107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 2004/0052048) in view of Scott (US 6,725,682) and Gektin et al. (US 6,945,315). Wu discloses (figure 1) Discloses a cooling system for a computer system processing unit as claimed including an integrated element (001), a heat radiator (106), and a fan (115), the integrated element including a heat exchanging interface (104), a reservoir (103), and a pump (110,117, 113); wherein the reservoir is adapted to receive a cooling liquid from outside the reservoir through an inlet (102) and pass the cooling liquid to outside the reservoir through an outlet (110); the reservoir comprising an upper chamber, containing the motor (113), and a

Art Unit: 3744

separate lower chamber (bellow divider 108), the separate lower chamber having a recessed cavity within the housing of the reservoir and bellow 108); a plurality of channels (116) adapted to direct flow of the cooling liquid across the heat exchange interface; the heat radiator is connected between the outlet and the inlet and is adapted to exhaust heat from the cooling liquid; the heat radiator being configured to circulate the cooling liquid there through; the heat exchanger interface (104) being removably attached to the reservoir such that the heat exchange interface forms a boundary wall of the lower chamber of the reservoir; the pump includes a motor having a rotor (117), a stator (113) and an curved impeller (110) being mechanically coupled to the rotor and at least partially submerged in the cooling liquid in the reservoir; the stator (113) being position in the upper chamber and the impeller (110) being positioned in the recessed cavity such that an entire bottom face of the impeller is completely exposed to an inside surface of the heat exchanger interface (104). Wu substantially discloses all of applicant's claimed invention as discussed above except for the limitation of an AC motor generated by a DC power supply of the computer. Scott discloses (figure 2A and column 12, lines 46-60) a computer system that has an AC voltage to operate the 12V AC pump, wherein the AC voltage is generated from a DC power supply of the computer by an inverter for a purpose of utilizing the same power supply of the computer to operate the pump. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Scott's teaching in Wu's device for a purpose of utilizing the same power supply of the computer to operate the pump. Wu further does not disclose that the speed of the impeller being configured to be varied independent of the speed of the fan. Gektin discloses (figure 7 and column 6, lines 21-24) a cooling system that has the fan and the pump operate independently for a purpose of reducing the risk of having

Art Unit: 3744

both the fan and the pump fail at the same time, which may cause a serious damage to the electronic system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Geklin's teaching in Wu's device for a purpose of reducing the risk of having both the fan and the pump fail at the same time, which may cause a serious damage to the electronic system.

Claim 104 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al, Scott and Gektin as applied to claim 103 above, and further in view of Hamman (US 2005/0052847). Wu, Scott and Gektin substantially disclose all of applicant's claimed invention as discussed above except for the limitation that the impeller includes curved blades. Hamman discloses (figure 6) a liquid cooling system that has a plurality of curved blades (602) to enhance liquid movement within the system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Hamman's teaching in the combination device of Wu, Scott, Gektin for a purpose of enhancing the liquid movement within the system.

Claim 105 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, Scott, Gektin and Hamman as applied to claim 104 above, and further in view of Alvaro (6,114,827). Wu, Scott, Gektin and Hamman substantially disclose all of applicant's claimed invention as discussed above except for the limitation that a means to detect an angular position of the pump rotor to rotate the rotor in a desired direction. Alvaro discloses means to detect an angular position of a rotor (see abstract) and to enable rotating the rotor in a desired direction (see col. 1, lines 34-36). It would have been obvious to one having ordinary skill in the art at the time the

Art Unit: 3744

invention was made to use Alvaro's teaching in the combination device of Wu, Scott and Gektin for a purpose of preventing damage to the motor as taught by Alvaro.

Claims 70,72,73,74,77,78,79,80,81,82 and 108-112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 2004/0052048), Scott (US 6,725,682) and Gektin et al. (US 6,945,315) and further in view of Alvaro (6,114,827). Wu, Scott and Gektin substantially disclose all of applicant's claimed invention as discussed above except for the limitation that a means to detect an angular position of the pump rotor to rotate the rotor in a desired direction . Alvaro discloses means to detect an angular position of a rotor (see abstract) and to enable rotating the rotor in a desired direction (see col. 1, lines 34-36). It would have been obvious in view of Alvaro to provide means to detect an angular position of the pump rotor rotate the rotor in the desired direction in the cooling system of Wu, Scott and Gektin. The motivation is to prevent damage to the motor as taught by Alvaro. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Alvaro's teaching in the combination device of Wu, Scott and Gektin for a purpose of preventing damage to the motor as taught by Alvaro.

Claims 85 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 2004/0052048), Scott (US 6,725,682) and Gektin et al. (US 6,945,315), Alvaro (6,114,827) and further in view of Bingler (6,668,911) or Iversen (US 5,001,548). Wu, Scott, Gektin and Alvaro disclose substantially all of applicant's claimed invention as claimed with the exception of the interface comprising a surface of the processing unit disposed in direct contact



Art Unit: 3744

with the cooling liquid. Bingler and Iversen both discloses (figures 1 and 3 respectively) an interface comprising a surface of a heat source (1,22 respectively) adapted to fit into an opening of the reservoir such that the surface is disposed in direct contact with the cooling liquid for a purpose of enhancing the heat transfer rate of the heat exchanger. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use either Bingler or Iversen's teaching in the combination device of Wu, Scott, Gektin and Alvaro for a purpose of enhancing the heat transfer rate of the heat exchanger.

The claimed subject matter of claims 113-117 is not found in the prior arts.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Igarashi (US 2003/0039097) discloses a cooling system.

Cheon (US 2002/0117291) discloses a computer having cooling apparatus.

Jairazbhoy (US 6,992,887) discloses a liquid cooled semiconductor.

Frankeny et al. (US 5,006,924) discloses a heat sink.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3744

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tho v Duong/  
Primary Examiner, Art Unit 3744